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09/302,898	04/30/1999	MICHAEL P. CAREN	10990105-5	7610

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EXAMINER

FORMAN, BETTY J

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1634

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/302,898
Filing Date: April 30, 1999
Appellant(s): CAREN ET AL.

Bret Field
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 20 June 2006 appealing from the Office action mailed 23 December 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

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The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. Prosecution in the cited application (09/359,527) has been re-opened.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,015,880 BALDESCHWIELER et al 01-2000

4,328,504 WEBER et al 05-1982

Graves et al. "System for Preparing Microhybridization Arrays on Glass Slides", Anal. Chem., 1998, 70: 5085-5092.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-18, 20-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldeschwieler et al issued 18 January 2000) in view of Weber et al (U.S. Patent No. 4,328,504, issued 4 May 1982).

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Claims 1-18, 21-23, 25-48 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Graves et al (Anal. Chem. 1998, 70: 5085-5082).

The previous rejection of Claims 20 and 24 over Graves et al are withdrawn.

The text of the rejections is of record and not reiterated herein.

(10) Response to Arguments: Baldeschwieler in view of Weber et al

Group I

Applicant asserts that because Weber is not directed to method of fabricating biopolymer arrays, one of ordinary skill in the art would not combine the teachings of Weber and Baldeschwieler. Applicant asserts that the technical field of Weber is non-analogous to that of Baldeschwieler and the technical field of Baldeschwieler is non-analogous to that of Weber. The argument has been considered but is not found persuasive because, in contrast to non-analogous fields, both Baldeschwieler and Weber are based on ink jet technology. Hence, the technologies of Baldeschwieler and Weber are analogous. Baldeschwieler specifically teach an Ink Jet Device and computer control of the “ink-jet device”, organic solvents used in the synthesis method are “suitable for ink-jet delivery”, and ink-jet pulse parameters can be readily adjusted based on reagent e.g. water (Example 1). And further teach the device is “directly analogous to the operation of color ink jet printers” (Column 6, lines 54). Baldeschwieler is clearly using an ink-jet for polynucleotide array synthesis. As such, the ink jet art of Weber is analogous to the ink jet used in the method of Baldeschwieler.

Arguments presented for Group I regarding “dried spots” are new arguments, not previously presented or discussed.

Applicant asserts that neither Baldeschwieler or Weber teach or suggest an imaging system that captures an image of an actual pattern of dried spots. The assertion is noted,

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however, Weber teaches dispensing ink drops and detecting positions of the ink spot or ink dot (Column 4, lines 44-50 and lines 57-67). Weber never mentions detecting drops. Weber specifically uses different words to describe what is dispensed versus what is detected. This clearly suggests that deposited drops have changed to and/or are different from detected spots or dots. Furthermore, the claimed dry spots are taught by Baldeschwieler (Column 10, lines 26-53). Hence, Baldeschwieler teach dried spots, and Weber suggests the tested dots are dry by use of the words dot and spot.

Applicant provides numerous comments about the printing problems recognized by Applicant and not recognized in the prior art of printing ink onto a paper. The problems include printing onto a microarray surface, the material of which is different from paper used in the ink-jet art; printing a microarray using a plurality of passes and various conditions, which is different from the single pass printing of ink onto paper; a nucleic acid array product, which is different from a printed page; and the field of biotechnology, which is different from the field of publishing. The comments are noted, however none of the elements described are elements of the claimed invention. The claimed invention does not define the microarray surface or materials used for the surface; the claimed invention does not define a number of passes or various printing conditions; and while the preambles for the claimed inventions recite method for fabricating an array, the claimed method steps do not produce an array of nucleic acids. Therefore the problems asserted by Applicant are not solved or addressed by the claimed invention. Furthermore, the arguments are not commensurate in scope with the claims.

Applicant asserts a declaration under 37 C.F.R. § 1.131 is not required to demonstrate the existence of the problem because the specification and accompanying signed oath are sufficient evidence that the problem existed and is solved by the instant invention. Hence, Applicant states that the Office has not established that the problem in the biopolymer array art that was recognized and solved by Applicant was known or expected in the biopolymer array

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art. Applicant asserts that it is the burden of the Office to so. The assertion is noted. However, Applicant has not provided sufficient evidence that the problem existed or that Applicant's claimed invention has solved any known problem. Furthermore, the cited passage does not provide evidence of the asserted problem. Applicant cites the paragraph spanning pages 2-3 for recognition of a problem. Neither the cited passage nor the entire disclosure provides any evidence, documentation or demonstration of a known problem as asserted. Therefore, there is insufficient evidence that a known problem is solved the claimed invention.

Group II

Arguments presented for Group II are new arguments, not previously presented or discussed.

Applicant asserts that neither Baldeschwieler or Weber teach or suggest an imaging system that captures an image of an actual pattern of dried spots. The assertion is noted, however, the claims are drawn to an imaging system. The intended use of the system i.e. "to capture an image of an actual pattern of dried spots" does not further limit or define the system. The courts have stated that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Applicant has not pointed to any structural differences between the cited imaging system and that instantly claimed. Therefore, arguments regarding the intended use for the system are not sufficient to overcome the rejection.

Furthermore, Weber teaches dispensing ink drops and detecting positions of the ink spot or ink dot (Column 4, lines 44-50 and lines 57-67). Weber never mentions detecting drops. Weber specifically uses different words to describe what is dispensed versus what is detected. This clearly suggests that deposited drops have changed to and/or are different from

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detected spots or dots. Furthermore, the claimed dry spots are taught by Baldeschwieler (Column 10, lines 26-53). Hence, Baldeschwieler teach dried spots, and Weber suggests the tested dots are dry by use of the words dot and spot.

Group III

Arguments presented for Group III are new arguments, not previously presented or discussed.

Applicant asserts that neither Baldeschwieler nor Weber teach or suggest the method where the image capture comprises imaging a light scattering characteristic of dried spots. The argument has been considered but is not found persuasive because Weber specifically teaches imaging light scattering characteristics i.e. reflection (Column 2, line 64-Column 3, line 2). Applicant further reiterates the argument that the references do not teach "dried spots". As stated directly above, Weber teaches dispensing ink drops and detecting positions of the ink spot or ink dot (Column 4, lines 44-50 and lines 57-67). Weber never mentions detecting drops. Weber specifically uses different words to describe what is dispensed versus what is detected. This clearly suggests that deposited drops have changed to and/or are different from detected spots or dots. Furthermore, the claimed dry spots are taught by Baldeschwieler (Column 10, lines 26-53). Hence, Baldeschwieler teach dried spots, and Weber suggests the tested dots are dry by use of the words dot and spot.

Group IV

Arguments presented for Group IV are new arguments, not previously presented or discussed.

Applicant asserts that neither Baldeschwieler nor Weber teach or suggest the method where the image capture comprises imaging a fluorescent characteristic of dried spots. The argument has been considered but is not found persuasive because Weber specifically teaches

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imaging light scattering characteristics i.e. reflection (Column 2, line 64-Column 3, line 2).

Baldeschwieler teaches detection of fluorescent properties of the spots (Column 3, lines 35-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to detect the fluorescent spots of Baldeschwieler using the detection and correction of Weber to thereby supervise ink-jet printing of the spots as desired in the art (Weber, Abstract).

Applicant further reiterates the argument that the references do not teach "dried spots". As stated directly above, Weber teaches dispensing ink drops and detecting positions of the ink spot or ink dot (Column 4, lines 44-50 and lines 57-67). Weber never mentions detecting drops. Weber specifically uses different words to describe what is dispensed versus what is detected. This clearly suggests that deposited drops have changed to and/or are different from detected spots or dots. Furthermore, the claimed dry spots are taught by Baldeschwieler (Column 10, lines 26-53). Hence, Baldeschwieler teach dried spots, and Weber suggests the tested dots are dry by use of the words dot and spot.

Group V

Arguments presented for Group IV are new arguments, not previously presented or discussed.

Applicant asserts that Baldeschwieler and Weber do not teach or suggest fabricating an array wherein the operation is halted automatically. The argument has been considered but is not found persuasive because Weber specifically teaches error detection halts printing to release a cleaning solution from the nozzle and/or produces an "alarm signal" (Column 5, lines 7-20). Hence, Weber teaches halting the printing, and generating an alarm following detection of an error as required by Claim 20.

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Group VI

Arguments presented for Group VI are new arguments, not previously presented or discussed.

Applicant argues that Baldeschwieler and Weber do not teach a control processor that loads the dispensers in a pattern in which some of the dispenser are loaded with the same fluid. The argument has been considered but is not found persuasive because operation of the ink-jet device of Baldeschwieler is controlled by the processor (Column 9, lines 25-32). Baldeschwieler further teaches that at least some of the jets are filled with the same fluid i.e. acetonitrile in which the monomers are dissolved (Column 10, lines 33-35).

Applicant reiterates that Baldeschwieler is deficient for not teaching correcting of errors in deposition and Weber does not teach comparison of dried spots. The argument has been considered but is not found persuasive because the combination of the references teaches all elements of the claimed invention and Weber teaches motivation for adding the error detection to the ink jet printing of Baldeschwieler i.e. detect errors so as to alter delivery and provide correct printing (Abstract).

Group VII

Arguments presented for Group VII are new arguments, not previously presented or discussed.

Applicant argues that Baldeschwieler and Weber do not teach altering an initial pattern such that the same drop dispenser is not used. The argument has been considered but is not found persuasive because Weber teaches that upon detection of an error, the dispenser is cleaned, re-evaluated and if the error is not corrected by the cleaning, the alarm signals operator so as correct the problem (Column 3, lines 25-40). This clearly suggests the "same drop dispenser is not used", at least before it is cleaned and after cleaning it would be a clean (i.e. different) dispenser.

Group VIII

Arguments presented for Group VIII are new arguments, not previously presented or discussed.

Applicant assert that Baldeschwieler and Weber do not teach an imaging system that includes a light receiving element mounted for movement by the transporter that moves the dispenser. The argument has been considered but is not found pervasive because Baldeschwieler specifically teach a camera mounted so as to be translated in x and y directions with the dispenser so as to monitor deposition (Column 9, lines 19-21).

Group IX

Arguments presented for Group IX are new arguments, not previously presented or discussed.

Applicant argues that Baldeschwieler and Weber do not teach a control processor that loads the dispensers in a pattern in which some of the dispenser are loaded with the same fluid. The argument has been considered but is not found persuasive because operation of the ink-jet device of Baldeschwieler is controlled by the processor (Column 9, lines 25-32). Baldeschwieler further teaches that at least some of the jets are filled with the same fluid i.e. acetonitrile in which the monomers are dissolved (Column 10, lines 33-35).

Furthermore, the claims are drawn to a control processor. The intended use of the system i.e. "to load the dispensers in a pattern in which at least some of the dispenser are loaded with the same fluid" does not further limit or define the structure of the processor. Applicant has not pointed to any structural differences between the cited processor and that instantly claimed. Therefore, arguments regarding the intended use for the processor are not sufficient to overcome the rejection.

Applicant reiterates that Baldeschwieler is deficient for not teaching correcting of errors in deposition and Weber does not teach comparison of dried spots. The argument has been

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considered but is not found persuasive because the combination of the references teaches all elements of the claimed invention and Weber teaches motivation for adding the error detection to the ink jet printing of Baldeschwieler i.e. detect errors so as to alter delivery and provide correct printing (Abstract).

Response to Arguments: Graves et al.

Group I

Applicant asserts that Graves et al is not concerned with fabricating arrays "according to a target array pattern. Applicant acknowledges that Graves compares arrays to provide reproducibly of deposition. However, Applicant asserts that reproducibility is not the same as deposition in accordance with a target array pattern as claimed. The argument has been considered but is not found persuasive because Graves specifically teaches computer controlled deposition based on spacing of needles, which could reasonably be interpreted as a target pattern. Graves further teaches that the deposition is controlled by computer and computer software (e.g. Abstract and page 5088, left column). Furthermore, as Applicant acknowledges, Graves compares a first printed array to subsequently printed arrays. The first printed array is reasonably interpreted as a target array pattern because it is the pattern that Graves uses to reproduce subsequent arrays. Applicant appears to be asserting that the "target pattern" requires some specific structure or function. However, the claims merely recite "a" target pattern. Therefore the needle spacing, spotting based on the spacing and/or reproducible arrays are encompassed by the broadly claimed target pattern.

Applicant asserts that Graves does not deposit drops in accordance with a target array pattern determined by a process in communication with the deposition system because the software of Graves permits user to specify movement of the deposition system. The assertion is noted, however reading the passage further it is clear that user specifications are put into

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the computer/processor, which then controls deposition (page 5086, second column).

Furthermore, Figure 1 (page 5087) illustrates operation of the system wherein all components are controlled by the processor.

Group II

Applicant asserts that Graves does not teach or suggest an apparatus comprising an imaging system to capture an image of an actual pattern of dried spots. The assertion is noted, however, the claims are drawn to an imaging system. The intended use of the system i.e. "to capture an image of an actual pattern of dried spots" does not further limit or define the system. Applicant has not pointed to any structural differences between the cited imaging system and that instantly claimed. Therefore, arguments regarding the intended use for the system are not sufficient to overcome the rejection.

Group III

Applicant asserts that Graves does not teach imaging light scattering characteristics of dried spots. The argument has been considered but is not found persuasive because Graves specifically teaches imaging light scattering (fluorescent emission) of dry (evaporated) spots (paragraph spanning pages 5090-5091 and Fig. 7).

Group IV

Applicant asserts that Graves does not teach imaging light scattering characteristics of dried spots. The argument has been considered but is not found persuasive because Graves specifically teaches imaging light scattering (fluorescent emission) of dry (evaporated) spots (paragraph spanning pages 5090-5091 and Fig. 7).

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Group V

Applicant asserts that Graves does not teach the method wherein operation is halted based on error detection. The argument has been considered and is found persuasive. The rejection of Claim 20 is withdrawn.

Group VI

Applicant asserts that Graves does not teach the method wherein the processor loads the dispenser in a pattern in which at least some of the dispensers are loaded with the same fluid. The argument has been considered but is not found persuasive because Graves specifically teaches the method wherein multiple dispensers are loaded with the same fluid (e.g. ink, paragraph spanning pages 5090-5091 and Fig. 7a).

Group VIII

Applicant asserts that Graves does not teach or suggest an imaging system that includes a light receiving element mounted for movement by the transporter that moves the dispenser. The argument has been considered but is not found persuasive because Graves teaches that both the dispenser and video microscope are mounted on the Z drive (Fig. 3 and figure legend, page 5088).

Group IX

Applicant asserts that Graves does not teach an apparatus wherein the processor loads the dispenser in a pattern in which at least some of the dispensers are loaded with the same fluid. The argument has been considered but is not found persuasive because Graves specifically teaches the method wherein multiple dispensers are loaded with the same fluid (e.g. ink, paragraph spanning pages 5090-5091 and Fig. 7a).

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Furthermore, the claims are drawn to a control processor. The intended use of the system i.e. "to load the dispensers in a pattern in which at least some of the dispenser are loaded with the same fluid" does not further limit or define the structure of the processor. Applicant has not pointed to any structural differences between the cited processor and that instantly claimed. Therefore, arguments regarding the intended use for the processor are not sufficient to overcome the rejection.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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